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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/085,487      | 02/27/2002  | David Robert Baldwin | TD-171              | 5725             |

29106 7590 06/21/2004

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EXAMINER

SANTIAGO, ENRIQUE L

ART UNIT PAPER NUMBER

2671

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/085,487

Applicant(s)

BALDWIN, DAVID ROBERT

Examiner

Enrique L Santiago

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-22,24 and 26 is/are rejected.
- 7) ☒ Claim(s) 6,7,23 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 8-11 and 13-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Laws et al. US Patent Application Publication no.: US 2003/0128204 A1.

-Regarding claims 1 and 13, Laws et al. teaches a method for evaluating plane equations on a patch of pixels (see page 2, paragraph [0019]), comprising the actions of: evaluating the plane equations at a base location which is not external to the patch (see page 2, paragraph [0019]); computing plane equation valuation offsets for a plurality of spatial offsets from said base location (see page 2, paragraphs [0022-0024]).

-Regarding claims 2, 14 and 18, Laws et al. teaches a method, wherein said base location is on the patch's boundary (see page 2, paragraph [0018] and [0022-0023]).

-Regarding claim 19, Laws et al. teaches a method, wherein said base location is within the patch being tested (see page 2, paragraph [0018] and [0022-0023]).

-Regarding claims 3 and 17, Laws et al. teaches a method for evaluating plane equations on a patch of pixels (see page 2, paragraph [0028 and 0077]): converting the plane equations to a format in which x and y coordinates are referenced to a base location which is within one patch width from the patch being tested (see figs. 1A and 1B, page 2, paragraph [0028 and 0077]); and

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computing plane equation valuation offsets for a plurality of spatial offsets from said base location (see page 2, paragraphs [0022-0024]).

-Regarding claims 8, 10, 15 and 20, Laws et al. teaches a method wherein said plane equations are two-dimensional plane equations (see page 1, paragraph [0007]), page 2, paragraph [0019]).

-Regarding claims 9, 11, 16 and 21, Laws et al. teaches a method wherein said patch of pixel holds 16 texels (see fig. 2).

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, 12, 22, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laws et al. US Patent Application Publication no.: US 2003/0128204 A1 in view of Baldwin et al. US Patent no. 5,594,854.

-Regarding claims 4 and 22, Laws et al. teaches a parallellized method for rapidly testing membership of pixels in a fragment (see page 2, paragraphs [0028 and 0077]) comprising: defining half-plane membership functions with reference to a base point which is not outside the fragment (see page 2, paragraph [0018], lines 1-4); evaluating said membership functions at a respective base location which is not external to the fragment (see page 2, paragraph [0018 and 0019]).

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Laws et al. does not directly teach a method including clamping extreme values of membership functions.

However in similar art Baldwin et al. teaches said method (see column 47, lines 8-10). Therefore it would have been obvious to one skilled in the art at the time of the invention to use said method, because it would reduce the number of calculations and provide a compact format which does not consume memory space unnecessarily (see column 1, lines 17-22).

-Regarding claims 5 and 24, Laws et al. teaches a method for rapidly testing membership of patches of pixels (see page 2, paragraph [0028 and 0077]): defining half-plane membership functions with reference to a base point which is not outside a respective patch (see page 2, paragraph [0018], lines 1-4); evaluating said membership functions in parallel for pixels of a patch (see page 2, paragraph [0028 and 0077]).

Laws et al. does not directly teach a method including clamping extreme values of membership functions.

However in similar art Baldwin et al. teaches said method (see column 47, lines 8-10). Therefore it would have been obvious to one skilled in the art at the time of the invention to use said method, because it would reduce the number of calculations and provide a compact format which does not consume memory space unnecessarily (see column 1, lines 17-22).

-Regarding claims 12 and 26, Laws et al. teaches a method wherein said patch of pixel holds 16 texels (see fig. 2).

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### **Allowable Subject Matter**

Claims 6, 7, 23 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US patent no. 4,987,554

US patent no. 5,428,717

US patent no. 5,446,836

US patent no. 6,636,218 B1

US patent no. 6,697,063 B1

US patent application publication 2003/0122829 A1

US patent application publication 2002/0097241 A1

US patent application publication 2002/0180748 A1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Enrique L Santiago whose telephone number is 703 306-5908.

The examiner can normally be reached on Monday to Friday from 7:00 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman whose telephone number is 703 305-9798, can be reached on Monday to Friday from 7:00 A.M. to 3:30 P.M.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

703 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Enrique L. Santiago

June 9, 2004

  
MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600